CONTROL ALGORITHM IN QAM MODEMS

ABSTRACT OF THE INVENTION.

5   A method and apparatus for automated acquisition of a QAM signal. The method employs an embedded state machine progressing from an initial state to a final state. The method comprises the following steps: (A) Performing an automatic gain control (AGC) operation on the incoming QAM signal to maintain a steady amplitude of the QAM signal; (B) Performing a symbol timing recovery

10   of the input QAM signal by adjusting a sampling clock of the symbol timing recovery loop; (C) Performing a Blind Equalization of the QAM signal without carrier lock to minimize a dispersion error of the received QAM signal constellation as compared with an error-free QAM signal constellation by adjusting a set of coefficients of the equalizer; (D) Performing a carrier recovery

15   of the QAM signal to eliminate a residual carrier frequency error and to eliminate a phase error from the acquired QAM signal; and (E) Performing a decision directed equalization (DDE) of the QAM signal by updating a set of coefficients of the equalizer by using a decision based algorithm.

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